

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 June 2005 (02.06.2005)

PCT

(10) International Publication Number
WO 2005/048816 A3

(51) International Patent Classification⁷: **G01V 3/00**
(21) International Application Number:
PCT/US2004/038145

(22) International Filing Date:
15 November 2004 (15.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/520,080 14 November 2003 (14.11.2003) US

(71) Applicant (for all designated States except US): **NEW YORK UNIVERSITY** [US/US]; 70 Washington Square South, New York, NY 10022-1091 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PAI, Vinay, Manjunath** [US/US]; 30 Waterside Plaza, Apt. 9B, New York, NY 10010 (US). **AXEL, Leon** [US/US]; 2214 Delancey Place, Philadelphia, PA 19103 (US).

(74) Agent: **ABELEV, Gary**; Dorsey & Whitney, LLP, 250 Park Avenue, New York, NY 10177 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

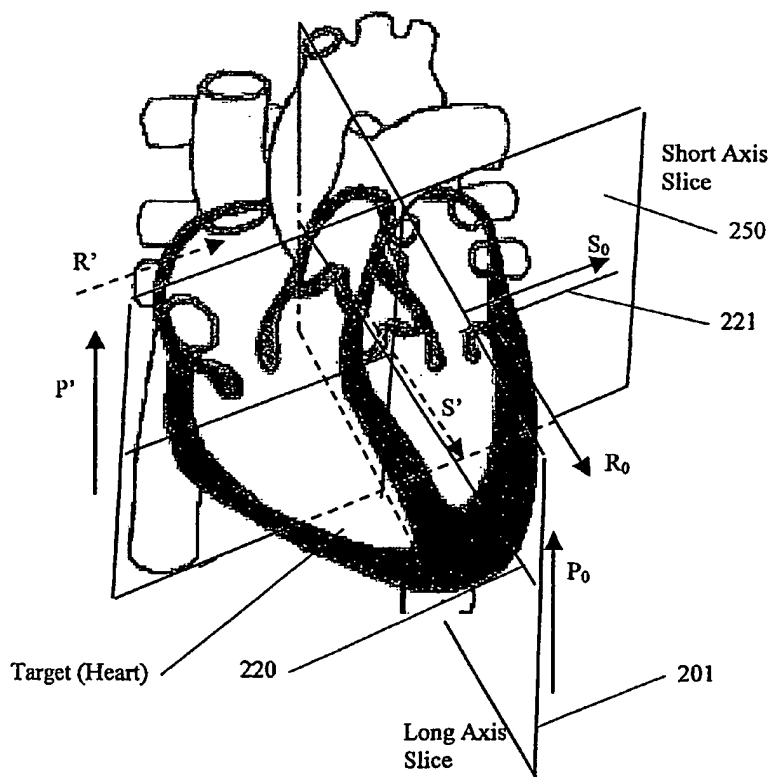
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: **AUTOMATIC RADIAL PRESCRIPTION OF LONG-AXIS SLICES IN MRI EXAMINATIONS**



(57) Abstract: A method, system, and software arrangement for automatically prescribing long-axis magnetic resonance imaging ("MRI") slices of a target are provided. An MRI image is captured along a short-axis slice of the target. Vectorial components, including slice selection, phase-encoding, and frequency-encoding vectors, are extracted from the short-axis slice. Vectorial components are established for a long-axis slice using the vectorial components of the short-axis slice, by transposing the slice-selection and frequency-encoding vectors. A plurality of long-axis slice planes are defined in a manner positioned relative to the long axis slice, rotating about a long axis in a direction of a long-axis frequency encoding vector. In one exemplary embodiment, frequency and phase shifts are established for each of the long-axis slices, for use in RF transmitting and receiving.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
23 February 2006